

## CHAPTER 5

# INSTRUCTOR'S GUIDE TO EFFECTIVE TRAINING

*This chapter provides the instructor with the information needed to train and sustain Dragon gunners and to train soldiers as team members.*

### 5-1. TRAINING PROGRAM SCHEDULE

The number of firing sites that can be staffed with instructors and equipped with DGTs and DFTTs dictates the number of gunners for each class. This allows for the effective use of time.

a. Instructors must allow sufficient time to orient students on the equipment. Negative results occur when the training schedule is shortened. The more information each soldier receives about how the weapon and training equipment operate and on the purpose of each, the better the soldier will perform as a gunner.

b. Initial marksmanship training, in the institution or unit, teaches essential skills and develops fixed and correct procedures in marksmanship before range practice begins. Thoroughly instructing and carefully supervising practice in the initial phase saves time and ammunition during range firing. It also allows students to develop techniques and procedures necessary for well-trained Dragon gunners and teams.

### 5-2. INDIVIDUAL INSTRUCTION

To prepare for live firing the Dragon, each gunner must learn various skills and habits. Although the Dragon training equipment closely simulates firing the Dragon weapon, gunners require personalized individual instruction to develop proper gunnery techniques and procedures. Instructors should key on the following points:

- Coach and stress the gunnery techniques shown in Table 5-1.
- Use and emphasize the sitting position and standing supported positions.
- Have gunners practice tracking in both directions—left to right and right to left.
- Have gunners clean the training equipment at the end of the day.

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| <ul style="list-style-type: none"><li>• Tight eye contact with the eyepiece.</li><li>• Proper position.</li><li>• Steady hold at the launch.</li><li>• Steady tracking at all times, especially through smoke.</li><li>• Slow and steady aim point correction to the target.</li></ul> |
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**Table 5-1. Gunnery techniques.**

### 5-3. TRAINING SEQUENCE

The Dragon gunner should receive training in the following sequence to control the missile launch and flight:

- Positions.
- Sighting, aiming, and firing.

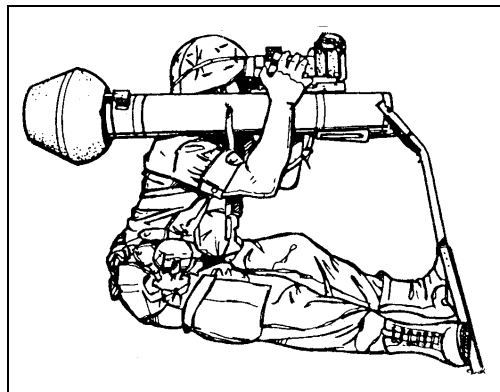
- Breathing.
- Tracking exercises.
- Qualification and verification.

#### 5-4. FIRING POSITIONS

The gunner must acquire and maintain a stable body position relative to the weapon and be able to move smoothly when tracking a moving target. The round must be solidly anchored on the muscle of the gunner's shoulder. His arms and hands must be properly placed to squeeze the trigger and to maintain the stability of the round. The position of the eye against the eyepiece is critical. Keeping the eye firmly pressed into (against) the eyepiece reduces launch-induced movement and prevents obscuration. The three basic firing positions for the Dragon are the sitting, standing supported, and kneeling. The gunner uses a modified sitting position to fire the Dragon from the M175 mount. The M175 mount fits the M3 or M122 machine gun tripod. (For more information about use of the tripod, see Appendix E.)

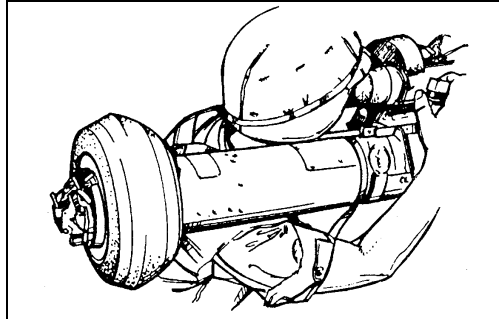
a. **Sitting Position.** Demonstrate the sitting position, then have the soldiers assume the position also (Figure 5-1). Instruct them as follows:

(1) The sitting position is the most stable. Sit with your legs extended as far as possible. Place the notch of your boot heels on the bipod and push outward.



**Figure 5-1. Sitting position.**

(2) Lean forward from your waist as far as possible. Pick up the round and place it on the muscle portion of your shoulder, keeping it tight against the curve of your neck (Figure 5-2).



**Figure 5-2. Position of round on shoulder.**

(3) Grasp the barrel of the sight with your left hand, curling your thumb under the tube. Grasp the firing mechanism with your right hand, with your thumb on the safety, three fingers on the firing lever, and your little finger on the front of the firing mechanism. Place the heel of your hand on the base of the firing mechanism to provide a firm grip and reduce slippage. When firing, *hold* the trigger in the depressed position; if you release your hand, you will experience an involuntary muscle reaction that will affect the sight and in turn the path of the round.

(4) Lift your head to align your right eye with the telescopic sight. Press your head forward and press your eye firmly against the eye guard. This forces your eye to stay open. Close your left eye, and keep it closed. If necessary, focus the sight.

(5) Pull down and back with your hands while pushing out with your feet. Try to touch your elbows together and to your chest at the same time (Table 5-2).

(6) Keep your back as straight as possible while leaning forward for better breath control. This limits discomfort and increases your ability to move your upper body.

(7) Maintain arm, back, and leg muscle tension. Use enough force that you do not experience an involuntary muscle reaction when the weight of the missile is removed from your shoulder.

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| <ol style="list-style-type: none"><li>1. Stress the need for keeping the pull-down force on the sight and the eye tight in the eye guard.</li><li>2. Body position and breath control are the two key elements to effectively engage targets.</li><li>3. Ensure the gunner keeps his body and limbs clear of the backblast area. He must keep the round at least 6 inches off the ground in order for the missile fins to clear the ground.</li></ol> |
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**Table 5-2. Training notes.**

b. **Standing Supported Position.** Demonstrate the standing supported position, then have the soldiers assume it also (Figure 5-3, page 5-4). Instruct them as follows:

(1) While standing in an individual fighting position or behind a support, place the bipod legs to your front. Place it at such a distance that you must reach for the round.

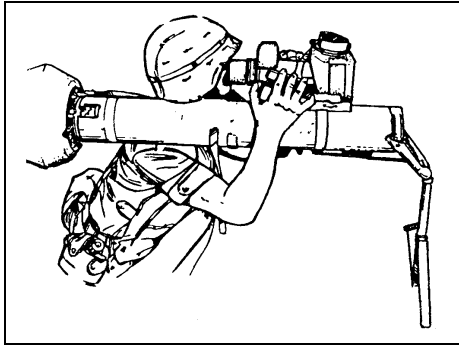
(2) Spread your legs a comfortable distance apart, keeping them straight. Place the round on your shoulder muscle.

(3) Lean forward against the wall of the fighting position to support your body from the waist down, so that you are in a stable firing position.

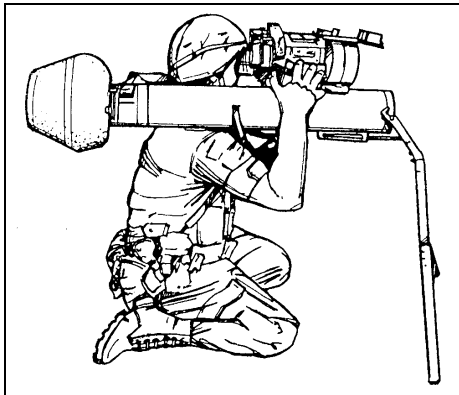
(4) Grip the sight as you did in the sitting position. Pull backward and down, while straightening your upper body slightly; this removes any slack in the bipod.

(5) Place your upper body, arms, hands, head, and eyes in the same position as you did when you assumed the sitting position.

c. **Kneeling Position.** Kneel, and spread your knees a comfortable distance apart. Position the bipod so that you have to lean forward to position your eye in the eye guard (Figure 5-4). Grasp the sight as previously described. Assume the same upper body position you did for the other firing positions. Place the round on your shoulder muscle, keeping it tight against your neck. As you lower your buttocks to your heels, take the slack out of the bipod. Try to sit on your heels so you will have a stable firing platform.



**Figure 5-3. Standing supported position (fighting position).**



**Figure 5-4. Kneeling position.**

### **5-5. M113 INSTRUCTIONAL TECHNIQUES**

Certain instructional techniques apply only to M113-equipped units. (See Appendix E for more information.)

### **5-6. SIGHTING, AIMING, AND FIRING**

Once the gunner has mastered the firing positions, the instructor can teach him how to sight, aim, and fire properly.

a. **Sighting.** Place the eye in the eyecup and pull the weapon tight enough against your eye that you cannot blink. Wrap your small finger around the front of the firing mechanism to add pulling force and to help keep the weapon tight against your eye. Visually select a target, and then acquire it through the daysight or nightsight by adjusting the upper portion of your body.

(1) Keep the weapon tight to keep the sight picture.

(2) Do not move your eye in the eyecup. If you move your eye, you will see the side of the telescope prism, which will blur your sight picture.

b. **Aiming.** Confirm that the target is within range by using the stadia lines. Place the cross hairs of the sight on the center of the target's visible mass. Regardless of the target's range or speed of movement, keep the cross hairs on the firing point until after you have fired and observed the impact of the round. To maintain the proper sight picture on a moving target, you have to move the upper portion of your body laterally (sideways). When you fire

from a seated position, never rest your elbows on your knees. This transfers any movement of your leg directly to the sight.

c. **Firing.** Fully depress the safety before you try to squeeze the trigger. Then, squeeze—do not pull—the trigger. Since the Dragon has little recoil, many gunners move more when they pull the trigger than when they experience the missile's launch effects (recoil and backblast).

### 5-7. BREATH CONTROL

Aiming the Dragon is similar to aiming a rifle, except that the cross hairs must be kept on the desired impact point for 1 to 12 seconds following missile launch, depending on range to the target. Training must stress the importance of starting to hold the breath two seconds before squeezing the trigger and continuing to hold it while acquiring the target, firing, and tracking. That is, to prevent breathing from interfering with tracking, the gunner takes a breath and holds it while pressing the trigger. He must not breathe while tracking a target, because body movements cause the launcher to move. To check for breath control, the instructor watches the gunner's back.

### 5-8. TRACKING EXERCISES

Reacting properly to temporary obscuration is an important gunner skill. Occasionally, the target may be obscured by launch gases, dust, and so forth. The gunner's instinctive reaction is to look for a target. This can either cause erratic missile flight, or it can terminate the flight. Training prepares the gunner to "freeze" on a stationary target or to continue tracking at the established rate on a moving target until the target reappears. Instructors should simulate obscuration during DGT and DFTT exercises. They should show soldiers how an improper reaction causes the LOS to move outside the established aiming error limits. Most training should be conducted at moving targets to promote gunner concentration. A gunner who can hit a moving target consistently can hit a stationary target easily. Most *misses* occur on moving targets. Training in the tracking of a moving target should begin when a gunner achieves proficiency in assuming positions, sighting and aiming, and breathing.

### 5-9. RANGE PROCEDURES

Leaders normally consolidate qualification, verification, and sustainment range firing for gunners and assistant gunners at battalion or higher.

a. **Officer or NCOIC.** Table 5-3 (page 5-6) shows officer or NCOIC duties. (See also Appendix F.)

- Organizes the range.
- Assigns, coordinates, and supervises the firing lines.
- Issues fire commands and general instructions to the firing line.
- During all firing exercises, enforces safety precautions as prescribed in AR 385-62, local SOPs, and applicable range regulations.
- Stresses precision, a steady tracking rate, point training, and use of a firm firing position posture in all instructional firing.
- Fires exercises in the order listed in the firing tables. Ensures that instructors control the exercises using appropriate fire commands.
- Ensures that a qualified instructor inspects all DGTs, DFTTs, and sights before and after each firing day for cleanliness, serviceability, and operation.
- Instructs gunners and assistant gunners on duty assignments and range operating procedures before training them with the equipment. Divides them into teams and assigns each of them a position.

**Table 5-3. Officer or NCOIC duties.**

- b. **Qualification Training.** For qualification, the gunner must fire the DGT.
- c. **Verification Training.** A gunner must verify quarterly to meet qualification standards.
- d. **Sustainment Training.** For monthly sustainment training, see Table 5-4 (page 5-7). The commander can select any target speed and monitor *DFTT* operation for gunner proficiency.
- e. **Coach and DFTT Operator.** During instructional firing, a coach or DFTT operator is at each DFTT to instruct and assist the gunner. The coach or DFTT operator—
  - Requires each gunner to observe safety precautions.
  - Supervises each gunner's actions at the DFTT.
  - Ensures gunners execute all the commands.
  - Repeats orders and instructions to ensure understanding and timely execution.

- Reports misfires, malfunctions, and discrepancies to the OIC or NCOIC.
- Critiques the tracking runs.
- Sets target size on the computer.
- Sets obscuration on the computer.

VEHICLE SPEEDS		NUMBER OF ROUNDS	RANGE
KPH	MPH		
0	0	2	1,000
0	0	2	500
0	0	1	300
10	6	5	1,000
18	11	5	500
29	18	5	300

**Table 5-4. Sustainment speeds.**

f. **Training Team.** (Figure 5-5).

- DGT or DFTT gunner.
- Loader.
- Scorekeeper (optional).
- Safety monitor.
- One target vehicle operator, who does not participate in training.

**NOTE:** Rotate duty assignments between students.

**Figure 5-5. Training team.**

g. **Safety Precautions.** Implementing the precautions shown in Figure 5-6 ensures safety for all personnel.

- Observe the DFTT backblast area.
- Wear properly fitted earplugs.
- Reset the dummy weight before loading or reloading.

**Figure 5-6. Safety precautions.**

h. **Duty Assignments and Tasks of Training Team Personnel.** Figure 5-7 (page 5-8) shows training team personnel duty assignments and tasks.

Duty Assignment Tasks	
<b>DFTT Gunner</b>	<input type="checkbox"/> Avoids pointing either end of the DFTT at personnel. <input type="checkbox"/> Fires only when cleared by the loader. <input type="checkbox"/> Does not look at the sun or at searchlights when sighting. <input type="checkbox"/> Considers all misfires to be hangfires and proceeds accordingly. <input type="checkbox"/> Does not leave a loaded DFTT unattended. <input type="checkbox"/> Prepares the DFTT for operation. <input type="checkbox"/> Fires the DFTT. <input type="checkbox"/> Reviews each tracking run with the DFTT operator.
<b>Loader</b>	<input type="checkbox"/> Considers all misfires to be hangfires and proceeds accordingly. <input type="checkbox"/> Helps perform misfire procedures. <input type="checkbox"/> Loads or reloads the DFTT. <input type="checkbox"/> Has all soldiers move their hands clear of the launcher before giving permission to fire. <input type="checkbox"/> Informs the gunner when to fire.
<b>Scorekeeper</b>	<input type="checkbox"/> Prepares the scorecard. <input type="checkbox"/> Informs the instructor of the gunner's progress.
<b>Safety Monitor</b>	<input type="checkbox"/> Ensures all participating team members use earplugs during the firing exercises. <input type="checkbox"/> Keeps personnel clear of the DFTT's backblast area during the firing exercises. <input type="checkbox"/> Reports all safety violations to the instructor for corrective action.
<b>Target Vehicle Operator</b>	<input type="checkbox"/> Complies with all safety precaution warning signs. <input type="checkbox"/> Drives the target vehicle.

**Figure 5-7. Example format for checklist of duty assignments and tasks.**

## **DANGER**

**THE DFTT USES HIGH VOLTAGES AND HIGH-EXPLOSIVE BLAST SIMULATORS.**

**YOU MUST FOLLOW ALL SAFETY PRECAUTIONS WHEN USING THIS EQUIPMENT. FAILURE TO DO SO COULD CAUSE YOU OR SOMEONE ELSE TO LOSE YOUR HEARING, SUFFER TRAUMATIC INJURY, OR EVEN DIE.**

**FOR INFORMATION ABOUT ARTIFICIAL RESPIRATION, SEE FM 21-11.**

### **1. *HIGH VOLTAGES.***

- **AVOID TOUCHING THE METAL PINS WHEN CONNECTING OR DISCONNECTING POWER CORDS OR SYSTEM CABLES.**
- **NEVER TRY TO DISASSEMBLE THE COMPUTER.**
- **NEVER USE THE EQUIPMENT IF THE CATHODE RAY TUBE (CRT) OR CABLE IS DAMAGED.**
- **FOLLOW THESE SAFETY PRECAUTIONS, OR YOU COULD DIE.**

### **2. *HIGH-EXPLOSIVE BLAST SIMULATORS.***

- **WITHIN 70 METERS OF A LOADED BLAST SIMULATOR, WEAR HEARING PROTECTION.**
- **HANDLE BLAST SIMULATORS CAREFULLY. IF POSSIBLE, WEAR FULL HELMET AND GLOVES.**
- **KEEP BLAST SIMULATORS AWAY FROM FIRE.**
- **NEVER HANDLE A DAMAGED BLAST SIMULATOR.**
- **STAY CLEAR OF THE DANGER ZONE AT ALL TIMES.**